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Amendments to the Claims:

CIC

03/06/2017

CLAIMS:

1. (Withdrawn) A regulated unit comprising:  
a semiconductor chip having logic circuits comprising at least one delay path that is dependent at least in part on a voltage value of a supply voltage applied to the semiconductor chip;  
a voltage regulator coupled to the semiconductor chip capable of changing the voltage value of the supply voltage;  
a thermal sensor on the semiconductor chip capable of sensing a temperature on the semiconductor chip; and  
a voltage controller coupled to the voltage regulator and to the thermal sensor, the voltage controller capable of causing the voltage regulator to change the voltage value of the supply voltage;  
wherein the voltage controller improves a timing margin of the at least one delay path on the semiconductor chip by dynamically controlling the voltage regulator to produce a supply voltage at or near a particular voltage value that causes the chip to operate at or near a limit temperature, the particular voltage being between a low limit voltage and a high limit voltage.
2. (Withdrawn) The regulated unit of claim 1, the semiconductor chip further comprising a timer coupled to the voltage controller, the timer capable of signaling to the voltage controller upon the end of an elapsed time interval.
3. (Withdrawn) The regulated unit of claim 2, wherein the timer is programmable as to the elapsed time interval.
4. (Withdrawn) The regulated unit of claim 1, the semiconductor chip further comprising a storage containing at least one element of product data associated with the regulated unit.
5. (Withdrawn) The regulated unit of claim 4, the at least one element of product data including the low limit voltage.